



## EUROPEAN PATENT APPLICATION

(43) Date of publication:  
07.01.1999 Bulletin 1999/01

(51) Int. Cl.<sup>6</sup>: G11B 20/00

(21) Application number: 98111443.2

(22) Date of filing: 22.06.1998

(84) Designated Contracting States:  
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU  
MC NL PT SE  
Designated Extension States:  
AL LT LV MK RO SI

(30) Priority: 03.07.1997 US 888009

(71) Applicant: AT&T Corp.  
New York, NY 10013-2412 (US)

(72) Inventors:

- Lacy, John Blakeway  
Warren, New Jersey 07059 (US)
- Snyder, James H.  
North Plainfield, New Jersey 07060 (US)

(74) Representative:

Modiano, Guido, Dr.-Ing. et al  
Modiano, Josif, Pisanty & Staub,  
Baaderstrasse 3  
80469 München (DE)

(54) Quality degradation through compression-decompression

(57) A method for recording media content onto a storage device, such as a compact disk, in which a master version of a media content is first compressed (11), then decompressed (12) prior to recording the compressed-decompressed (13) media content onto the storage device.

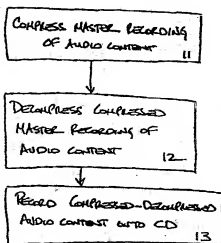


FIGURE 1

## Description

### CROSS-REFERENCE TO RELATED APPLICATIONS

The present application is related to an application (Attorney Docket No. Lacy 3-5-6) entitled "Custom Character-coding Compression For Encoding And Watermarking Media Content" by Jack B. Lacy, Schuyler Quackenbush R. and James H. Snyder, and filed concurrently with the present application.

### BACKGROUND OF THE INVENTION

#### 1. Field of the Invention

The present invention relates to the field of telecommunications. More particularly, the present invention relates to a method for recording media content onto a storage medium.

#### 2. Description of the Related Art

Piracy of audio program material, or content, is a significant problem facing particularly the recording industry. The advent of digital music compact disks (CDs) has meant that perfect copies of audio content are readily available to so-called "pirates," who can reproduce the content without degradation and sell the pirated content at below-market rates. The growth of the Internet has exacerbated the piracy problem, providing such pirates a distribution channel directly to customers who are eager to purchase audio content for a bargain.

Music CDs are manufactured from master content recorded and mixed at a recording studio. Such CDs might contain 500 megabytes of digital audio data representing, for example, 45 minutes of audio program material. Since so much data is required to represent a typical "album" of audio content (e.g., music), distributing such content over the Internet is impractical without using an audio compression technique. Advances in audio compression technology have permitted transmission of compressed audio content over the Internet, with decompression performed by a recipient of such content, with little or no loss of audio content quality.

What is needed is a way control distribution of media content over the Internet for preventing piracy of the media content.

### SUMMARY OF THE INVENTION

The present invention provides a method for controlling distribution of media content over the Internet, thus deterring piracy of the media content. The advantages of the present invention are provided by a method for manufacturing a compact disk in which a master version of a media content is first compressed, then decompressed prior to recording the compressed-decompressed media content onto the compact disk.

Preferably, the media content is compressed and decompressed using the Perceptual Audio Coder (PAC) compression-decompression algorithm or the Advanced Audio Coder (AAC) compression-decompression algorithm.

### BRIEF DESCRIPTION OF THE DRAWING

The present invention is illustrated by way of example and not limitation in the accompanying Figure which shows a flow diagram for a compression-decompression process for media content according to the present invention for deterring piracy of the media content.

### DETAILED DESCRIPTION

The present invention provides a method for deterring piracy of audio content, but is equally applicable to media content containing video and/or textual content.

According to the present invention, audio CDs are made by a process that includes compressing and decompressing audio content prior to recording the content onto CDs for distribution and sale. The content, for example, music, thus stored on such a CD or other storage device, such as a diskette having a magnetic medium, is not the conventional representation of digital music, but instead a representation of content that has been modified by compression and decompression. A CD produced in this manner will sound just like an ordinary CD when it is played in a conventional CD player. However, when the audio content of such a CD is compressed a second time by, for example, a pirate (as an antecedent process to practical transmission of the media content over the Internet, for example) and subsequently decompressed by a customer, the audio quality is substantially degraded.

The sole Figure shows a flow diagram for a compression-decompression process 10 for media content according to the present invention for deterring piracy of the media content. At step 11, the audio content is compressed using a well-known audio compression algorithm, such as the Perceptual Audio Coder (PAC) algorithm or the Advanced Audio Coder (AAC) algorithm. At step 12, the compressed audio content is decompressed using the appropriate decompression algorithm. At step 13, the compressed-decompressed audio content is recorded onto a CD subsequent distribution and sale.

While the present invention has been described in connection with media having an audio content, it will be appreciated and understood that the present invention is applicable to media having audio content, such as music and/or speech, and/or images, and/or video, and/or textual content, and that modifications may be made without departing from the true spirit and scope of the invention.

Where technical features mentioned in any claim are followed by reference signs, those reference signs

have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the scope of each element identified by way of example by such reference signs.

5

### Claims

1. A method for manufacturing a compact disk, the method comprising the steps of:  
10  
    compressing the media content;  
    decompressing the media content; and  
    recording the compressed-decompressed media content onto the compact disk.  
15
2. The method according to claim 1, further comprising the step of recording a master media content, and  
20  
    wherein the step of compressing compresses the master media content, and the step of decompressing decompresses the compressed master media content.
3. The method according to claim 2, wherein the steps  
25  
of compressing and decompressing the media content uses the Perceptual Audio Coder compression-decompression algorithm.
4. The method according to claim 2, wherein the steps  
30  
of compressing and decompressing the media content uses the Advanced Audio Coder compression-decompression algorithm.

35

40

45

50

55

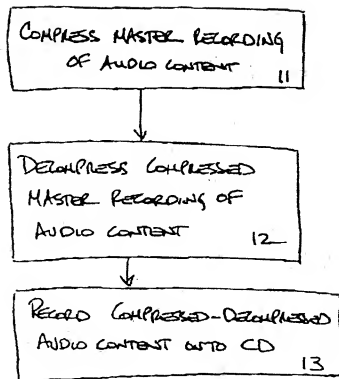


FIGURE 1

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 889 470 A3

(12)

## EUROPEAN PATENT APPLICATION

(88) Date of publication A3:  
17.02.1999 Bulletin 1999/07(51) Int. Cl.<sup>6</sup>: G11B 20/00, H04B 1/66(43) Date of publication A2:  
07.01.1999 Bulletin 1999/01

(21) Application number: 98111443.2

(22) Date of filing: 22.06.1998

(84) Designated Contracting States:  
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU  
MC NL PT SE  
Designated Extension States:  
AL LT LV MK RO SI(72) Inventors:  
• Lacy, John Blakeway  
Warren, New Jersey 07059 (US)  
• Snyder, James H.  
North Plainfield, New Jersey 07060 (US)

(30) Priority: 03.07.1997 US 888009

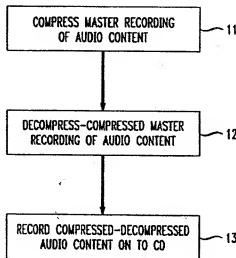
(74) Representative:  
Modiano, Guido, Dr.-Ing. et al  
Modiano, Josif, Pisanty & Staub,  
Baaderstrasse 3  
80469 München (DE)(71) Applicant: AT&T Corp.  
New York, NY 10013-2412 (US)

## (54) Quality degradation through compression-decompression

(57) A method for recording media content onto a storage device, such as a compact disk, in which a master version of a media content is first compressed (11), then decompressed (12) prior to recording the compressed-decompressed (13) media content onto the storage device.

FIG. 1

10



EP 0 889 470 A3

European Patent  
Office

## EUROPEAN SEARCH REPORT

Application Number  
EP 98 11 1443

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	WO 96 18191 A (SOUTHERN BROADCASTING SYSTEMS ; SULLIVAN DANIEL SHANE O (AU)) 13 June 1996 * column 2, line 3 - line 14 * * column 3, line 1 - line 24 * * column 7, line 19 - column 8, line 13 * * column 10, line 32 - column 12, line 16 * * figure 1 *	1,2	G11B20/00 H04B1/66
A,P	EP 0 797 313 A (LUCENT TECHNOLOGIES INC) 24 September 1997 * column 4, line 18 - column 4, line 55 * * column 11, line 25 - line 49 * * claims 1,5 *	1-3	
A	EP 0 717 338 A (AT & T CORP) 19 June 1996 -----		
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			G11B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 23 December 1998	Examiner Schiwy-Rausch, G
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document & : member of the same patent family, corresponding document	

EPO FORM 1503 (03.02.92) (P/4/C01)

# ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 98 11 1443

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
The members are as contained in the European Patent Office EDP file on  
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

23-12-1998

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9618191	A	13-06-1996	AU 4112396 A	26-06-1996
EP 0797313	A	24-09-1997	CA 2199070 A	19-09-1997
			JP 10039897 A	13-02-1998
EP 0717338	A	19-06-1996	CA 2160942 A	17-06-1996
			JP 8272476 A	18-10-1996

